

Apple-Works Forum

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Five Dollars

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Support for AppleWorks and ///EZ Pieces Users

Use UltraMacros to Save Typing

Dear NAUG,

I find myself having to type "`@SUM()`" repeatedly whenever I create a spreadsheet. Can't I use UltraMacros to save the repetitive typing?

Charles Causey
San Diego, California

[Ed: This is an ideal application for UltraMacros. Just follow these steps to capture your keystrokes the next time you enter @SUM():

1. Enter an Open-Apple-X to indicate that you want to record your keystrokes.
2. Press the number "9" (or any other key) to assign your macro to that key. If UltraMacros warns you that the key is already assigned to a macro, indicate that you want to replace the original macro.
3. Type `@SUM()`. UltraMacros will memorize your keystrokes.
4. Enter another Open-Apple-X to indicate you are done recording the macro.

UltraMacros will now type `@SUM()` each time you enter a Solid-Apple-9. However, the program will forget your new macro each time you quit AppleWorks. Follow these steps to add your `@SUM()` macro to UltraMacros' default set. Then UltraMacros will automatically load the macro each time you launch AppleWorks:

1. Enter an Apple-Escape to go to the TimeOut Menu and select "Macro Options".
2. Select choice #3, "Save macro table as default set" and respond "No" to the "Activate auto startup macro?" prompt.

Complete directions for creating and storing keyboard macros appear in Mark Munz's book *The UltraMacros Primer*, available from NAUG.]

The **National AppleWorks Users Group (NAUG)** is an association that supports AppleWorks users. NAUG provides technical support and information about AppleWorks and enhancements to that program. Our primary means of communicating with members is through the monthly newsletter entitled the **AppleWorks Forum**.

Label Printing Problems

Dear Cathleen,

I have a problem printing multiple copies of labels from my AppleWorks data base. The first set of labels print normally. But instead of printing additional sets of labels, AppleWorks only reprints multiple copies of the last label in my report. What is going on?

Leonard Warchol
Killeen, Texas

[Ed: This label-printing problem is one of the bugs in AppleWorks 3.0. When printing labels, AppleWorks 3.0 prints the first set of labels correctly but then repeats only the last row of labels when you ask for more than one copy of the report. When printing tables format reports, AppleWorks 3.0 prints the first report correctly but prints only the report heading and the first record in additional copies of the report.

Mark Munz, Randy Brandt and others have developed a series of patches that fix this and eight other problems with AppleWorks 3.0. They put these patches in the public domain; you can download them from the NAUG bulletin board, CompuServe, America Online, or GENie. They also include the patches with the AW3.0 Companion and with Outliner. Finally, NAUG's Public Domain Library offers the AW 3.0 Patch Disk, a bootable disk that automatically applies these patches to your copy of AppleWorks (\$4 in 5.25-inch format; \$6 for a 3.5-inch disk, plus \$2 s/h per order). Version 1.5 of the AW 3.0 Patch Disk is current.]

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How to Use @NPV and @RATE

by Stan Hecker

This is the last of a series of articles that describe how to use the new financial functions in AppleWorks 3.0. The author assumes that you read the previous articles in this series.

This month I will conclude this series of articles about AppleWorks 3.0's new financial functions by describing how to use @NPV (net present value) and @RATE in your spreadsheet models.

@NPV

@NPV is a function that computes the price you should reasonably pay for an investment that yields a variable stream of payments. Unlike the annuity functions, which require fixed streams of payments, @NPV accommodates uneven payments. In addition, @NPV discounts the present value to allow for the interest you would earn on an alternative investment.

All other factors being equal, you should consider investments that you can buy for less than the net present value. If the investment costs more than the net present value, you are probably better off investing in the alternative investment that yields the percentage return you included in the @NPV calculations.

Thus, net present value is the present value of any stream of payments discounted by the amount of interest you would earn from an alternative investment. You can think of the @NPV function as the general solution to present value problems; the @PV function, which I described earlier in this series of articles, is a speedy, shorthand form for cases where the payments are level and repeated.

Syntax of @NPV

Since the annuity functions I described in the previous articles assume level payments, they only require the payment amount and number of payments to do their work. However, @NPV can handle a stream of uneven payments, and thus requires

that you specify each payment. You enter this information by including the range of spreadsheet cells that contain those payments into the @NPV statement. The syntax is:

`@NPV(rate, cashflow range)`

The "rate" is the standard decimal fraction interest rate you use in all financial functions. When you apply the function to quarterly, monthly, or other periods, you divide the rate by the appropriate integer; generally "4" for quarterly calculations and "12" for monthly computations.

The "cashflow range" is the range of cells that contain all the payments other than the purchase price for your interest in the venture.

An Example of @NPV

Figure 1 presents a simple example that demonstrates the use of the @NPV function as a part of an analysis of a real estate investment.

Imagine that you are invited to participate in a partnership that will buy and then rent a small apartment building that yields a rental income of \$1,500 per month. You and your partners can earn 10% annual interest if you invest your money elsewhere. The question is, "How much money would I have to pay right now to buy a level stream of 12 monthly payments of \$1,500 if I could earn 10% annually on my money?"

Since the "cashflow range" in this example is a steady, level stream of payments, you can use either the @PV or @NPV function to compute the answer. It should not be surprising that the result of the @NPV calculation in cell G13 corresponds to the @PV calculations in cell G14.

Figure 1: Gross Rental Income Analysis

```

File: Real.Estate                REVIEW/ADD/CHANGE                Escape: Main Menu
=====A=====B=====C=====D=====E=====F=====G=====H=====I=====J=====K=====L=====
4|
5|
6|                A Real Estate Partnership:
7|                Gross Monthly Rent Receipts
8|
9|    JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC
10|
11|    1500    1500    1500    1500    1500    1500    1500    1500    1500    1500    1500    1500
12|
13| Net present value using @NPV:                17062
14| Present value using @PV:                    -17062
15|
16| (The function @PV(.10/12,12,1500) is in cell G14 above.)
17|
18|
19|
20|
21|
-----
G13: (Value, Layout-F0) @NPV(.1/12,A11...L11)

Type entry or use ␣ commands                345K Avail.

```

column or row separators (e.g., blanks, dashes, asterisks, or vertical lines) within the cash-flow range.

Another Example

Although the question of how much it would cost to buy a level stream of payments is interesting, the more important question is "How much of your savings is this real estate venture really worth?". This is a complex question that must allow for different costs and income each month. Your calculations should also make reason-

Cautions

Note the following cautions when you work with @NPV:

1. Unlike @PV, AppleWorks displays the result of @NPV in the "wrong" sign. The @PV function in *Figure 1* says "You have to pay \$17,062 right now to buy a stream of 12, \$1,500 payments at 10% interest." You express the \$17,062 as a negative number because it is money you must give out of your pocket.

@NPV violates the general practices surrounding the other financial functions and returns a positive value for the out-of-pocket cost. Be careful about the sign associated with the result of any @NPV calculations. This is particularly true in templates where formulas refer to each other.

2. You must include all transactions except the first buy-in cost (which is what the @NPV function calculates) in the @NPV cashflow range. Remember to include any midstream "balloon" or final payments in the cashflow range for the function to work properly.
3. The cashflow range must be in adjacent cells in a row or column. Each cell must contain a value (even if the value is zero) and there can be no

able allowances for projected expenses or declines in income; for example, extra expenses and reductions in income that might occur if the property is vacant during July and August.

Let's also imagine that your partners only need your help to get started in their high risk investment. They expect you to contribute \$1,500 towards the closing costs and down payment in January and offer to return your money the following December. They promise to give you a full share of the cash-flow during your year of ownership.

Figure 2 demonstrates how you can use the @NPV function to analyze this more complex situation. It shows the positive cashflow for January through June, a loss during the summer when some apartments will be empty, and increased cashflow when the partners raise rents in September. The \$1,650 listed in December includes the monthly \$150 positive cash flow plus the \$1,500 re-payment of your investment.

The result of the @NPV calculation in *Figure 2* suggests that this investment is worth \$1,927 at the 10% rate of return you can achieve by alternate, and perhaps safer, investments. Yet the partners are asking for \$1,500. Therefore, you can conclude that this is a good investment if you ignore factors such as the comparative risk of different invest-

Spreadsheet Tips...

ments, and tax advantages that are not included in this analysis.

@RATE

Although totally unrelated to @NPV, the @RATE function is simple, elegant, and powerful. According to the AppleWorks manual, @RATE yields the annual compound interest rate for any lump-sum transaction where there is one purchase, one sale, and where interest rates may vary. You can use @RATE to determine the rate of return of many investments, or the rate of increase in the value of your home or business.

Syntax

The syntax of @RATE is:

@RATE(term, present value, future value)

"Term" is a number of years. You can enter "10" for a 10-year investment, or enter a fraction such as "6/12" for a six month term. Enter either "1.5" or "18/12" for an 18 month term.

"Present value" is the lump sum purchase price. Generally, you should enter a negative number for the present value; the investment is money out of your pocket.

"Future value" is the lump sum sale price. Generally this is a positive number; the amount of money the investment will add to your pocket when it is sold.

Application of @RATE

Let's use the @RATE function to determine the annual growth rate of a share of stock.

Imagine that a stock you've been watching is worth \$55 per share. You expect to be able to sell the shares for \$62 in 20 months when you will need the cash to pay for your daughter's tuition. What annual rate of return will you earn for that investment?

Figure 2: Net Cashflow of a Real Estate Partnership

```

File: Real Estate          REVIEW/ADD/CHANGE          Escape: Main Menu
=====A=====B=====C=====D=====E=====F=====G=====H=====I=====J=====K=====L=====
4|
5|
6|          A Real Estate Partnership
7|          Net Expected Cash Flow—One Share
8|
9|  JAN   FEB   MAR   APR   MAY   JUN   JUL   AUG   SEP   OCT   NOV   DEC
10|
11|  100   100   100   100   100   100  -300  -300   150   150   150  1650
12|
13|Net present value using @NPV:          1927
14|Present value using @PV:          Not possible
15|
16|(The function @PV(.10/12,12,??) will not work in cell G14 above.)
17|
18|
19|
20|
21|
-----
G13: (Value, Layout-F0) @NPV(.1/12,A11...L11)

Type entry or use ␣ commands          345K Avail

```

To answer this question, put the cursor in any AppleWorks spreadsheet cell and enter the formula

@RATE(20/12, -55, 62)

By entering "20/12", you expressed the "term" in years (20 months is 1.667 years). You will pay \$55 out of pocket for the stock, so you entered the purchase price as a negative number. The money received when you sell the stock goes into your pocket, so you entered that value as a positive number.

Press the Return Key, and AppleWorks will display ".0745272" or just over 7.4%. If this stock does not yield any dividends and assuming that there are no tax consequences or other costs, this investment will return approximately 7.4% per year. Under those circumstances, perhaps it would be best to put your cash in a money-market fund.

Another Example

Here is another example of @RATE. Imagine that ten years ago, the city assessed the taxable value of your house at \$55,000. This year, your tax assessment is \$95,000. What is the average rate of growth in the value of your home?

Put the cursor on any blank spreadsheet cell and enter the formula

@IRR Revisited: A Note for Experts

The first article in this series suggested that, "...financial experts may want to try some test cases to see if they can use fractional interest rates within @IRR to calculate correct internal rates of return for erratic monthly or quarterly cash flows."

A number of NAUG members pursued the topic of fractional interest rates and suggested ways to address this problem.

As you may recall from the November article, the purpose of @IRR is to describe a series of irregular payment by a single, compound interest rate. As we learned this month, the purpose of @NPV is to establish the net present value which results in the known rate of return that you include in the function.

Thus, "Net Present Value" and "Internal Rate of Return" are two sides of the same coin. If you fix the interest rate, the @NPV function can determine the purchase price or up-front cost. If you fix the purchase price (by setting the "up-front cost" within the stream of payments), the @IRR function will tell you the interest rate. Both functions can operate on variable streams of payments. You can check the results of one function by using the other.

Consequently, you can modify *Figure 2* to demonstrate how @IRR works for a stream of 12 monthly payments.

Start by changing the value in cell A11 to -1842.91 and recalculate. The @NPV function in cell G13 will now yield a zero.

The @NPV function in *Figure 2* includes .1 (or 10%) as the interest rate. The zero in cell G13 indicates that if you pay \$1943 in January, and receive your first \$100 payment from the partnership that same month, the entire stream of payments yields 10%. (The \$1843 figure results when you subtract the \$100 from the initial \$1943 payment.) \$1943 is very close to the \$1927 which the @NPV function in *Figure 2* suggests is the value of the stream of payments; the \$16 difference is attributable to your buying into the partnership in December instead of in January.

Now let's see if the @IRR function yields the same results. Enter @IRR(A11...L11, 1/12) *12 in cell G19 and recalculate.

Note that the @IRR function returns .1000 or 10%. This demonstrates two points:

1. The @NPV and @IRR functions are comparable.
2. If you set the "interest rate guess" for the period of each payment, the @IRR function can accept an uneven stream of payments. (In this case, we set the interest rate guess to one month by dividing the annual interest by 12 months. Then we multiplied the result by 12 to display the results in the common decimal fractions used throughout this series of articles.)

This approach also works for calculations over an extended period. For example, NAUG member Rudy Bergfield reports that the results are accurate when you use the @IRR function with a monthly interest rate over 72 months.

Conclusion

To use @IRR for erratic monthly or quarterly payments, divide the "interest rate guess" by the appropriate period ("12" for monthly, "4" for quarterly, and so forth) and multiply the result of the @IRR function by the same factor to return it to the standard decimal fraction.

@RATE(10, -55000, 95000)

AppleWorks will display .0561755; the annual growth in real estate values was just over 5.6%. Again, note that you entered the original valuation as a negative number, as if you just bought the house, and the current value is positive, as if you were selling.

@RATE is a flexible function that has many applications outside the scope of personal and business finances. For example, you can use @RATE to determine population or enrollment growth rates, increases in the national debt, or the growth rate of the value of your stamp collection.

Summary

AppleWorks' financial functions are powerful, flexible, and accurate. You can use these functions to improve the quality of your investments and to project your financial circumstances into the future. I hope you find many ways to use these functions to help you remain prosperous and successful.

[Stan Hecker is on the administrative staff at Michigan State University and a partner in H&H Consultants, a Michigan concern specializing in educational finance and school populations.]

Accelerate Your TransWarp GS Card — Part 2

by John Link

This is the second of three articles that describe how to significantly improve the performance of a TransWarp GS card without voiding its warranty. The author assumes that you read the previous article in this series.

Last month, I described how to upgrade the cache memory on an Applied Engineering TransWarp GS (TWGS) accelerator card from 8K to 32K. That modification significantly improves the performance of a TWGS without changing the card's 7 MHz processing speed. This month I will describe how to increase the card's processing speed to 7.5, 8.0, 8.5, or 9.0 MHz. These are simple and relatively inexpensive changes. Next month, I will discuss how to get 10 MHz processing speed, a modification that is more complex and more costly than the others I described in this series.

Upgrades are Symbiotic

Increasing TWGS cache size and processing speed are separate upgrades; you do not have to install one to get the other to work. Nor does it matter which upgrade you install first. However, the cache and processing speed modifications interact with each other to generate exponential improvements in performance. As you can see from *Figure 1* in last month's article, you get a 22% improvement in performance when you increase the TWGS cache from the standard 8K to 32K. When you increase the processing speed of a standard 8K TWGS from 7 MHz to 9 MHz, you get a 15% improvement in performance. But the performance of the TWGS improves by 48% (instead of the "expected" 37%) when you install both modifications on a single card.

Thus, I recommend that you install the cache upgrade in conjunction with any of the processor speed modifications. *Figure 1* in last month's article describes the performance gains you get from

each modification, and how the processor speed modifications interact with the cache upgrade.

What about the Warranty?

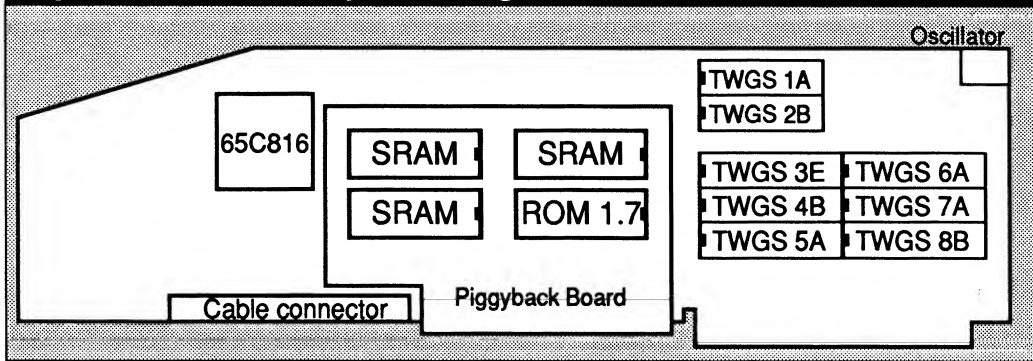
These changes do not void your warranty. If these enhancements do not work on your board, restore the original components to their respective sockets, and your card should once again operate at its standard 7 MHz speed. You should also restore the original components to the board if you return your card to Applied for repair. Applied often repairs boards by swapping a defective board for a new one, and you would lose your high speed parts in the process.

Qualifying Your TWGS ROM

If you installed the 32K cache upgrade I described last month, you have the latest version of the TWGS ROM. Otherwise, follow the directions in the manual and invoke the TransWarp Desk Accessory. If the eighth line of text on the first screen says "Revision 1.5" (or greater), your TWGS will run at speeds above 7 MHz. (Version 1.5 ROMs report false error messages in the speed self-test when the TWGS runs faster than 8 MHz. You can ignore those messages.)

If you do not have the appropriate ROM, I recommend that you install the TWGS Cache Upgrade Kit I described last month. That kit includes both the most recent ROM (version 1.7 is current) and the recommended 32K of cache memory. Alternatively, Applied will ship just the current ROM as a special order item for \$20.00.

Figure 1: TransWarp GS Diagram



If coping with a zero profile mount seems too difficult, you can buy a standard 28 pin low-profile socket (Radio Shack part #276-1997) for less than a dollar. Insert the new ROM into the low-profile socket by inserting the pins on one side of the IC slightly, then rotate the chip so the sec-

Replacing the ROM

The ROM is the only socketed chip on the piggyback board (see *Figure 1*). You can remove the ROM with a standard IC puller (they cost about a dollar at Radio Shack), or insert a small screwdriver under each end of the chip and carefully pry it out. I recommend the chip puller. If you use a screwdriver, make certain that you do not destroy any traces underneath the chip with the screwdriver tip. (One method to protect the traces is to use the edge of the piggyback board as the fulcrum for the first “prying” and then put a thin piece of cardboard under the screwdriver tip whenever it contacts the board.)

Removing the ROM will expose the 28 holes which held its pins. Applied uses a “zero profile socket mount” for the ROM; it is sometimes difficult to insert new chips into these mounts.

The new ROM comes with its pins spread out to facilitate its use in auto insertion machines. You will have to bend these pins to the vertical position so they fit into the socket without deflecting underneath the chip.

Put the new ROM on its side with one row of pins resting on a flat table; then rotate the chip until the pins are almost vertical. Repeat this process for the other row of pins. Put the chip over the socket and make certain that all the pins line up correctly. Repeat this procedure until the pins line up. Do not force a misaligned chip into a zero profile socket, or you may bend one or more of its pins underneath the chip.

Finally, note the location of the notch on the ROM chip in *Figure 1*. Install the new ROM with that orientation.

ond side lines up. Then press the chip in place. You still must be careful not to bend a pin underneath the chip, but it is much easier to insert a chip into a low profile socket than into a zero profile mount. Note the location of the notch and insert the entire package into the TWGS. The low-profile socket is easy to insert into the card.

Qualifying Your TWGS Cable

Some TWGS owners experience problems with the cable that attaches the TWGS to the motherboard. Continuity tests show that these cables pass a small test current, but the cables are unreliable in actual use. This problem generally appears after you stress the cable by removing and reinstalling the TWGS. If you experience intermittent failures of an unexplained origin that go away when you replace the TWGS with your original 65C816 CPU, contact Applied for a replacement cable. Applied ships an improved cable with all boards manufactured after November 1, 1990.

8 MHz for Five Dollars

The processing speed of your TWGS is determined by an oscillator, which is a timing device that determines how fast the TWGS executes the instructions in its cache. It takes four cycles of the oscillator for the processor to execute a single instruction. Thus, a TWGS card with a 28 MHz oscillator processes instructions at 7 MHz.

Check the speed printed on the oscillator (see *Figure 1*). Applied shipped TWGS cards with 28 MHz and 25 MHz oscillators which operate at 7 MHz and 6.25 MHz respectively. Owners of 7 MHz TWGS cards can usually increase the speed of their

Modifying a Full TTL Oscillator

Both the standard and hard-to-find mini-oscillators use four pins arranged in the same relative position on the part. To use the larger oscillator with the TWGS, you must solder extensions onto the two lower legs, then bend the extended legs so they fit into the smaller 8-pin socket used by the TWGS.

You will need the oscillator, a low wattage soldering iron (e.g., Radio Shack's 25-watt #64-2070; \$6.49), electrical rosin core solder (not acid core), one large light emitting diode (less than \$1.00 at Radio Shack and other electronic stores; you will use the wires on the LED as the extensions to the legs on the chip), a nail clipper or small scissor, a short piece of electrical tape, and small needle-nose pliers.

The diagram in *Figure 2* shows the layout for the legs on the oscillator, using the one square corner on the chip as the reference. Leave pins 1 and 2 alone. You will solder the extensions onto pins 3 and 4.

Follow these steps:

1. Pre-heat the soldering iron for ten minutes.
2. "Tin" each leg of the LED as follows:

A. Separate the legs of the LED and hold the unit by the plastic housing.

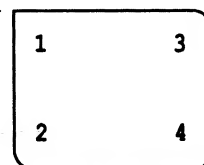
B. Apply the soldering iron and a minimum amount of solder to one leg until it flows.

C. Repeat this process for the other leg.

3. Repeat step #2 and tin the tips of legs 3 and 4 on the oscillator. Use enough heat to cause the solder to flow, but avoid overheating.
4. Lay the oscillator on the table with its legs pointing up. Grasp the LED by its plastic end, and hold the LED against leg 3 on the oscillator while applying heat from the soldering iron. When the solder flows, remove the iron, but continue holding the LED leg against the oscillator leg for a moment until the solder sets.
5. Clip off the leg just below the plastic end of the LED.
6. Repeat this process for leg 4 on the oscillator.

Figure 2: Legs on the Oscillator

square corner →



7. Trim the soldered extensions so the legs are approximately twice as long as the original legs.
8. Use the needle-nose pliers to bend the extended legs in an "S" curve so they fit in the holes on each side of the 8-pin socket. Be certain that the bent leg does not contact the metal case of the oscillator. (Contact with the metal case will cause the TWGS to fail upon boot up but will not damage the board or computer. Once you correct the problem, your computer will work normally.)
9. Attach a small piece of electrical tape to the bottom of the oscillator before you insert it in the TWGS. That will keep the modified legs from contacting the oscillator case when you insert the oscillator in the TWGS card. Do not omit this step.
10. Insert the oscillator in the appropriate TWGS socket.

system just by changing the oscillator. Owners of 6.25 MHz accelerators will also have to replace the CPU to get any processing speed improvements.

Replacing the oscillator is the easiest and least expensive way to increase the processing speed of your card, and many vendors sell suitable oscillators for less than \$5.00. Almost all 7 MHz TWGS cards will run reliably at 7.5 MHz if you substitute a 30 MHz oscillator for the 28 MHz part originally on the card. My work suggests that approximately 80% will run reliably at 8 MHz with a 32 MHz oscillator. Some will work at 8.5 MHz, using a 34 MHz oscillator (but 34 MHz oscillators are hard to

find), and a few will run at 9 MHz, using a 36 MHz oscillator. As a practical matter, anyone who wants 9 or 10 MHz processing speed should also plan to replace the CPU, as described below.

The TWGS uses a hard-to-find "mini TTL" or "1/2 TTL" oscillator that fits into an 8 pin socket. Radio Shack does not carry oscillators, so you should check with a specialized electronics store. (Take your original oscillator to the store if you are uncomfortable describing what you need.) If you cannot find the mini TTL oscillators, JDR Micro-devices sells standard "full TTL" oscillators that you can modify to fit on the card. (See the sidebar

entitled "Modifying a Full TTL Oscillator" for the details.)

Installing the Oscillator

You do not have to remove the TWGS card to upgrade the oscillator. Turn off your computer but leave it plugged into the wall receptacle. Remove the cover and ground yourself by touching the power supply. Remove the oscillator by gently pulling it straight off the card with just your fingers. Note that the square corner of the oscillator (which is also marked with a dot) goes in the upper left hand corner of the socket, and that the oscillator has only four legs; the middle four holes in the socket are not used. Insert the faster oscillator into the socket and test your system.

RamKeeper owners who cannot boot their systems with the accelerated TWGS will have to reinstall and reconfigure their AEROM disks as described in the manual. Set the system and TWGS speeds to "Normal", then reinstall and reconfigure your RamKeeper. Finally, restore the TWGS to "Trans-Warp" and the system speed to "Fast", and test your system.

This procedure works because the 7 MHz processor on your card passed a test which proves it will operate reliably at 7 MHz under the worst possible conditions. These include high ambient temperatures and low voltages on the 5 volt line that supplies the card's power. In some cases, the chip was not even tested for its ability to work at a higher speed, and may well have passed a higher test speed. Your system's conditions may be more optimal than those for which the TWGS was designed; your chip may operate faster than its 7 MHz rating, or both. By installing a faster oscillator, you are in effect testing your chip for higher speed operation in your particular system. Many of them will pass.

Upgrading to 9 MHz

The TWGS uses PLCC 65C816 (44 pin) chips for its CPU. Western Design Center sells high speed versions of the 65C816 for \$95.00 as "engineering chips" (Part # W65C816PL-ENG). These chips are direct replacements for the original CPU on the TWGS. [Ed: NAUG members can get these chips from Western Design for \$71.25. Identify yourself

as a NAUG member and supply your NAUG ID number when you order.] These high speed processors will run reliably at 9 MHz, and most will work at 10 MHz if you make the modifications that I will describe in next month's article. (Those who ultimately want to achieve 10 MHz performance will suffer no harm by buying their engineering chip this month and by first installing the 9 MHz upgrade.)

Western Design ships each engineering chip with its own shmoo plot. You do not have to understand the shmoo plot to use the chip, but next month's article will describe how to interpret the information on the plot that came with your chip.

To achieve 9 MHz operation, you will need both a high speed 65C816 and an oscillator rated at 36 MHz.

Theoretically, some of the socketed parts on a standard TWGS should not perform reliably above 8 MHz. However, all three of my test boards have been running reliably at 9 MHz for more than four months, using nothing but standard parts. I am confident that virtually all users will be able to achieve 9 MHz performance, especially if their system is equipped with a fan. However, it is not possible for me to absolutely guarantee that everyone will experience my level of success.

Installing the New CPU and Oscillator

Follow these steps to modify your TWGS for 9 MHz operation:

1. Turn off your computer, remove the cover, and ground yourself by touching the power supply.
2. Remove the TWGS by reversing the installation procedure described in the TWGS manual.
3. See *Figure 1* for the location of the processor socket, which surrounds the 65C816 chip. Straighten a fairly stout paper clip and bend the last half inch so it forms a 90 degree angle with the shaft.
4. Each corner of the processor socket has a slot that is wide enough to admit a paper clip. Insert the bent end of the paper clip into one of the four slots in the socket until it is underneath the chip. Gently pry upward, using the paper clip as

Sources of Supply

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(602) 962-4545

JDR Microdevices
2233 Branham Lane
San Jose, CA 95124
1-800-538-5000

a lever; then repeat the process in each corner until the chip is free.

5. PLCC chips are "keyed" with one corner cut off. Line up the new CPU with this cut off corner positioned above the upper left hand corner of the socket (viewed with the TWGS facing you). Press the new chip down carefully using only finger pressure until it is fully seated in the bottom of the socket.
6. Replace the oscillator with one rated at 36 MHz using the procedure described above.
7. Reinstall the TWGS. Be certain that the cable is connected securely to both the IIGS motherboard and the TWGS; loose connections at these points can cause an otherwise successful modification to fail.

Testing Your Modified TWGS

9 MHz: You should not have to test the 9 MHz upgrade extensively, since engineering 65C816 chips should run this fast with ease. Immediately after booting up, run the TWGS self-tests according to the instructions in the manual. TWGS cards equipped with version 1.7 ROMs should not fail any test. Version 1.5 ROMs will fail the speed test, but that is not significant. Use your system to do unimportant work for four hours and once again perform the self-tests. After four hours, you can proceed with normal use. Back up your work frequently until you are confident that your upgraded TWGS performs reliably.

Simple Oscillator Swap: The simple oscillator replacement requires a more cautious approach, since you are pushing your CPU to its limit. Use the test method I described for the 9 MHz upgrade, but extend the continuous run time to 48 hours, and save your important work frequently until you are certain your faster TWGS performs reliably.

Applied Engineering and Western Design Center both say that running normal software after the

warmup is the best way to confirm that the upgraded board is reliable. I found one case of an over-accelerated 65C816 (on a TWGS modified only by replacing the oscillator with a faster version) that passed all the self-tests, but which

was not entirely reliable after being left powered up for 48 hours.

What If It Fails?

Start by installing a system fan if your high-speed computer doesn't operate reliably. The cooler your system, the more reliably it will work at these higher speeds.

If you are using a modified full TTL oscillator, make certain that you installed the small piece of electrical tape described in step #9 of the sidebar.

If neither of these fixes solves your problem, replace the oscillator with one that operates slightly slower, until you achieve reliable operation. You can also replace your power supply with a specially configured heavy duty unit from Applied Engineering; I will describe this last remedy next month.

Conclusion

If you follow these suggestions, 80% of all TWGS owners can upgrade their computers to operate at 8 MHz for the \$5 cost of a new oscillator. If you already have a fan, it costs a NAUG member less than \$80 to upgrade to a 9 MHz system. This is quite reasonable, considering the overall cost of your IIGS computer, and this is the upgrade that is most likely to succeed. Thus, I recommend the 9 MHz upgrade to anyone who does not want to get involved in uncertainties.

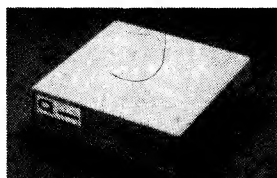
Next month's article will describe how to accelerate your system to 10 MHz. Those techniques will build upon the 9 MHz upgrade described here. ■

[John Link is an AppleWorks consultant and the developer of SuperPatch and LockOut. The author and NAUG extend special thanks to Steven Malechek of Applied Engineering for his help with this article.]

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How to Display Dates with TimeOut Graph

by Charles Richey

If you ever used a computer to produce a graph, you know how difficult it is to prepare graphs that represent dates on the x-axis. Graphing software generally tries to print every date. As a result, the programs end up printing graphs with only one or two characters per date, running the dates together in one black smear, or printing the dates vertically down each column. The result is an unattractive or unreadable set of labels on the x-axis.

The trick to producing attractive time-sequence graphs is to use abbreviations for dates and to print only some of the dates or times on the x-axis. I used this technique with the data in *Figure 1* and with TimeOut Graph to produce the graph in *Figure 2*.

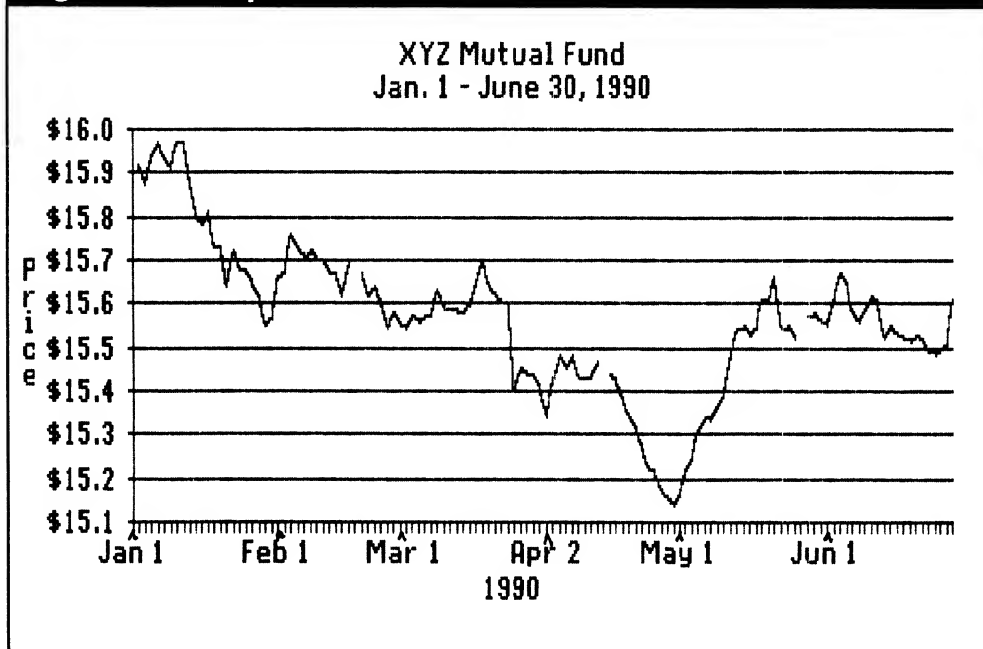
I drew the caret marks in the graph with a pencil after printing the output on my dot matrix printer.

[Charles Richey is a registered representative with the Permanent Portfolio Funds.]

Figure 1: Sample Data

| =====A=====B===== | |
|-------------------|---------------|
| 1 | Date PPF |
| 2 | Price |
| 3 | ----- |
| 4 | Jan 1 Holiday |
| 5 | 15.92 |
| 6 | 15.87 |
| 7 | 15.93 |
| 8 | 15.97 |
| 9 | 15.93 |
| 10 | 15.91 |
| 11 | 15.97 |
| 12 | 15.97 |
| 13 | 15.88 |
| 14 | 15.80 |
| 15 | 15.78 |
| 16 | 15.81 |
| 17 | 15.73 |
| 18 | 15.73 |
| 19 | 15.64 |
| 20 | 15.72 |
| 21 | 15.68 |
| 22 | 15.67 |
| 23 | 15.65 |
| 24 | Feb 1 15.61 |
| 25 | 15.55 |
| 26 | 15.55 |
| 27 | 15.55 |
| 28 | 15.55 |
| 29 | 15.55 |
| 30 | 15.55 |
| 31 | 15.55 |
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| 81 | 15.55 |
| 82 | 15.55 |
| 83 | 15.55 |
| 84 | 15.55 |
| 85 | 15.55 |
| 86 | 15.21 |
| 87 | 15.17 |
| 88 | 15.15 |
| 89 | 15.14 |
| 90 | May 1 15.17 |
| 91 | 15.21 |
| 92 | 15.25 |
| 93 | 15.31 |
| 94 | 15.31 |
| 95 | 15.31 |
| 96 | 15.31 |
| 97 | 15.31 |
| 98 | 15.31 |
| 99 | 15.31 |
| 100 | 15.31 |

Figure 2: Graph



A Macro that Configures Your IIGs

by Keith Johnson

When Apple Computer introduced the IIGs system, I was impressed by the apparent increase in the number of slots and ports available in the computer. Apple advertised that the IIGs had seven peripheral slots in addition to a printer port, modem port, mouse port, "Smartport", and built-in RGB interface.

Like many IIGs owners, my excitement was short-lived when I learned about the true nature of these devices. That is, the slots and ports were not independent; you had to choose between using the slot or the associated port. Switching between the port and the slot involves changing the Control Panel settings, turning off the computer, and re-booting your system. That is not my idea of convenience and flexibility.

Ultimately, third party developers overcame some of these limitations by developing cards that can operate without resetting the associated port. Indeed, Apple recognized the problem and built independent slots and ports into its ROM 3 IIGs systems. But that is of little help to the majority of us who are otherwise happy with our ROM 01 computers.

With all his slots occupied, Rich Douglas, of Paxton, Illinois connected his ImageWriter to the printer port, and connected a second printer to a

parallel interface card in Slot 1. But Mr. Douglas didn't appreciate having to reconfigure the Control Panel and reboot his system each time he wanted to switch printers. So he wrote a macro that performs the slot switch from inside AppleWorks (see *Figure 1*).

Once you install this macro, every press of the <sa-1> key combination toggles the Slot 1 setting in your IIGs between "Your Card" and "Printer Port".

How the Macro Works

The IIGs keeps track of its slot assignments by storing different values in location 49197 (hexadecimal \$C02D) in memory. The details of this storage algorithm appear in the sidebar on the next page. Mr. Douglas' macro uses a <peek> token to look at the current value in that location. The macro then pokes the alternate value in address 49197, and displays a message that describes which printer selection is active. If the macro doesn't recognize the current value, it displays an appropriate message and does not make any changes.

Customizing the Macro

The values 128 and 130 in this macro will probably not work for your setup; you might have to customize the macro for your own computer. Follow

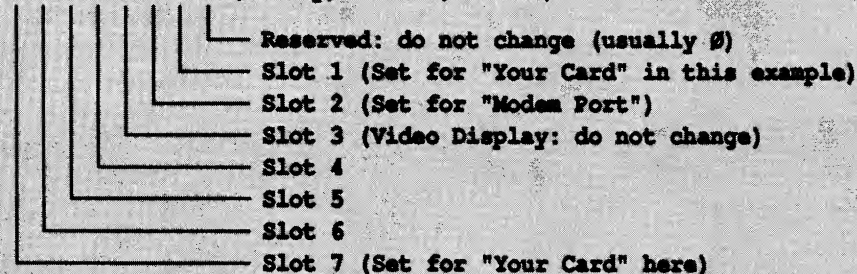
Figure 1: Macro that Reconfigures the Control Panel

```
1:<all :
x = peek 49197 :                { Look at the current switch setting.           }
$1 = 'Setting not recognized!' : { Enter a default phrase that will appear if the macro      }
                                { doesn't recognize the setting.         }
if x = 128 then poke 49197,130 : { Change switch setting to "Your Card".                       }
$1 = 'Slot 1 is now Your Card' : { New text for message.                                       }
else : if x = 130 then poke 49197,128 : { Change switch setting to "Printer Port".                     }
$1 = 'Slot 1 is now Printer Port' : { New text for message.                                       }
endif : msg $1 :                { Display the message.                                           }
k = key : msg '>'!              { Erase the message when the user presses any key.         }
```

A Note for Experienced Users

The individual bits in location 49197 (\$C02D) control the slot assignments for the Apple IIGs, according to the following scheme:

1 0 0 0 0 1 0 (binary) = 130 (decimal)



A "1" indicates the slot is set for Your Card; a "0" means the slot is set for the default internal Apple configuration, which varies for each slot. Most users of this macro will only be concerned with slots 1 and 2.

You can also determine the contents of location 49197 from BASIC without entering AppleWorks. With the BASIC "J" prompt on the screen, type

```
PRINT PEEK(49197)
```

and the system will display the current decimal value of that memory address.

Port" setting. Then replace all references to "130" with the value you found for "Your Card".

Recompile the macro and test your work.

Although this process might seem laborious, you only have to go through the procedure once and can then use a single keystroke to toggle between any slot assignment and associated port.

You can also revise the macro to reconfigure Slot 2 instead of Slot 1 or even rewrite the macro so you can switch both slots. However, there are then four possible configurations that the macro must recognize, and things can get complicated.

Cautions

Modifying the contents of memory location 49197 has its risks, and

these steps to learn the numbers you should use:

1. Temporarily enter and compile the following macro:

```
A:<all :  
x = peek 49197 :{ Look at the current value of }  
                { location 49197.                }  
$1 = str$ x : msg $1!{ Display that value.    }
```
2. Enter a <sa-A> to run the macro and write down the value displayed in the message area at the bottom of the screen. Also write down the current assignment for Slot 1, either "Printer Port" or "Your Card."
3. Go to the Control Panel and change the slot assignment for Slot 1.
4. Turn the computer off for about a minute. Then turn it back on to put your slot change into effect.
5. Restart AppleWorks and repeat steps 1 and 2 above.
6. Now modify the macro in Figure 1 for your own system. Use the Apple-R command in AppleWorks to replace all references to "128" with the value you wrote down for the "Printer

Apple's GS Hardware Manual warns that changes to this address might cause system crashes. However, this method passes my most crucial test: It works and lets me switch slot assignments as I wish. However, make certain you test the macro before entrusting your system with important data.

Also remember to use the macro to switch back to the original setting before leaving AppleWorks. That insures that the next program you run (yes, there are other useful programs besides AppleWorks!) will print properly.

Finally, note that the values you obtained with the temporary macro will not be valid if you use the Control Panel to change any of the slot assignments manually. Repeat those steps to determine the new values and revise the macro.

[Keith Johnson is Associate Director of the Fleischmann Planetarium at the University of Nevada. Rich Douglas teaches science and computers at PBL Junior High at Paxton, Illinois and teaches AppleWorks for Parkland College.]

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ImageWriter Tips

by Cathleen Merritt

Many of the questions we get at NAUG concern printer problems. Here are some suggestions to help you get better output from your ImageWriter printer.

1. Don't blame AppleWorks if you get columns of numbers and letters like the example in *Figure 1* instead of the output you expect from AppleWorks. If you touch the Select button on the printer when you turn on the power, your ImageWriter will enter Hexadecimal Mode and produce the strange output you see in *Figure 1*. What you see on the page is the hexadecimal representation of every character that AppleWorks or any other program sends to the printer. If this occurs, turn off the printer and then turn it back on; be careful not to touch the Select button.
2. The ImageWriter has a self-test mode that prints all the characters in the default character set. To test your printer, hold down the Form Feed button while you turn on the power switch. Turn off the power or press the Select button to end the test. This output also includes the printer's current DIP switch settings.
3. You can print the self-test in the ImageWriter's three different quality modes. Start the self-test and then press the Select, Print Quality, Line Feed, and Form Feed buttons at the same time to stop the output. Press the Print Quality button to select the setting you want and then press the Select button.
4. Dot matrix printheads are complex mechanisms that get dirty and wear out. If your output suggests that one or more pins is not functioning properly, try to clean the printhead.

Figure 1: ImageWriter Output

| | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|
| 30 | 20 | 20 | 20 | 20 | 20 | 54 | 68 | 69 | 73 | 20 | 70 |
| 65 | 72 | 79 | 20 | 73 | 61 | 64 | 20 | 61 | 6E | 64 | 20 |
| 72 | 61 | 67 | 69 | 63 | 2C | 20 | 62 | 65 | 63 | 61 | 75 |
| 0D | 0A | 0F | 1B | 4E | 1B | 46 | 30 | 31 | 30 | 30 | 6D |
| 6F | 75 | 6E | 64 | 20 | 74 | 68 | 65 | 20 | 70 | 72 | 65 |
| 65 | 72 | 20 | 64 | 69 | 64 | 20 | 6E | 6F | 74 | 20 | 61 |
| 6F | 20 | 73 | 61 | 76 | 65 | 20 | 74 | 68 | 65 | 0D | 0A |
| 31 | 30 | 30 | 66 | 61 | 77 | 6E | 20 | 69 | 6E | 73 | 69 |
| 65 | 20 | 64 | 65 | 65 | 72 | 2E | 20 | 20 | 54 | 72 | 61 |
| 61 | 6C | 6D | 6F | 73 | 74 | 20 | 74 | 68 | 65 | 20 | 6F |
| 6F | 66 | 0D | 0A | 0D | 0A | 0F | 1B | 4E | 1B | 46 | 30 |
| 63 | 65 | 2C | 20 | 62 | 65 | 63 | 61 | 75 | 73 | 65 | 20 |
| 63 | 65 | 2C | 20 | 73 | 6F | 6D | 65 | 74 | 68 | 69 | 6E |
| 73 | 75 | 61 | 6C | 6C | 79 | 20 | 63 | 6F | 6D | 65 | 73 |
| 46 | 30 | 31 | 30 | 30 | 6F | 75 | 74 | 20 | 6F | 66 | 20 |
| 6F | 72 | 79 | 2E | 20 | 20 | 54 | 68 | 65 | 20 | 72 | 75 |
| 61 | 20 | 74 | 72 | 61 | 67 | 69 | 63 | 20 | 73 | 74 | 6F |
| 74 | 0D | 0A | 0D | 0A | 0F | 1B | 4E | 1B | 46 | 30 | 31 |
| 65 | 20 | 68 | 61 | 70 | 70 | 79 | 20 | 65 | 6E | 64 | 69 |
| 72 | 61 | 76 | 65 | 20 | 68 | 65 | 72 | 6F | 65 | 73 | 20 |
| 20 | 61 | 20 | 71 | 75 | 65 | 73 | 74 | 2E | 0D | 0A | 0D |

(Directions appear on pages 22-23 of the May 1990 issue of the *AppleWorks Forum*.) If that does not solve the problem, see the special NAUG offer on new and rebuilt printheads from Impact Printhead Services. That offer appears on page 17 of the October 1990 issue of the *AppleWorks Forum*.

[Cathleen Merritt is the Director of NAUG and is the Editor of the *AppleWorks Forum*.]



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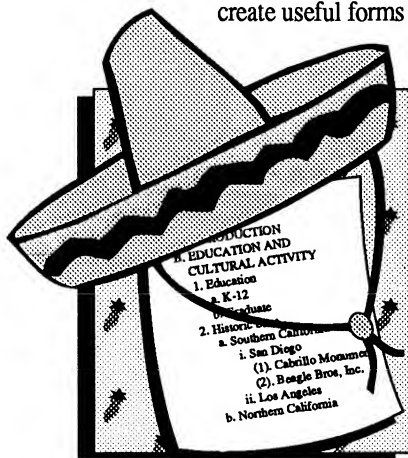
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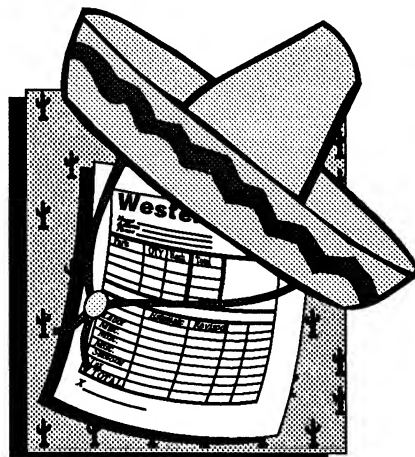
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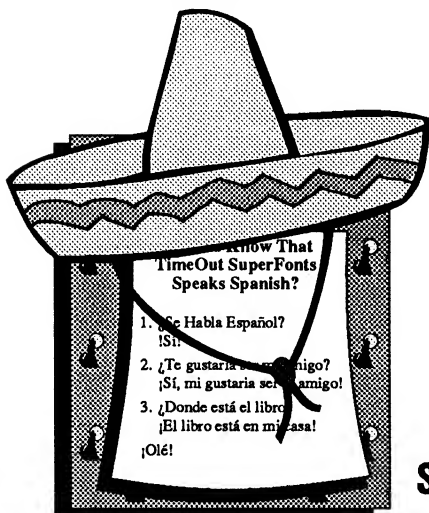
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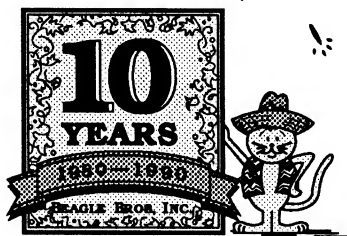
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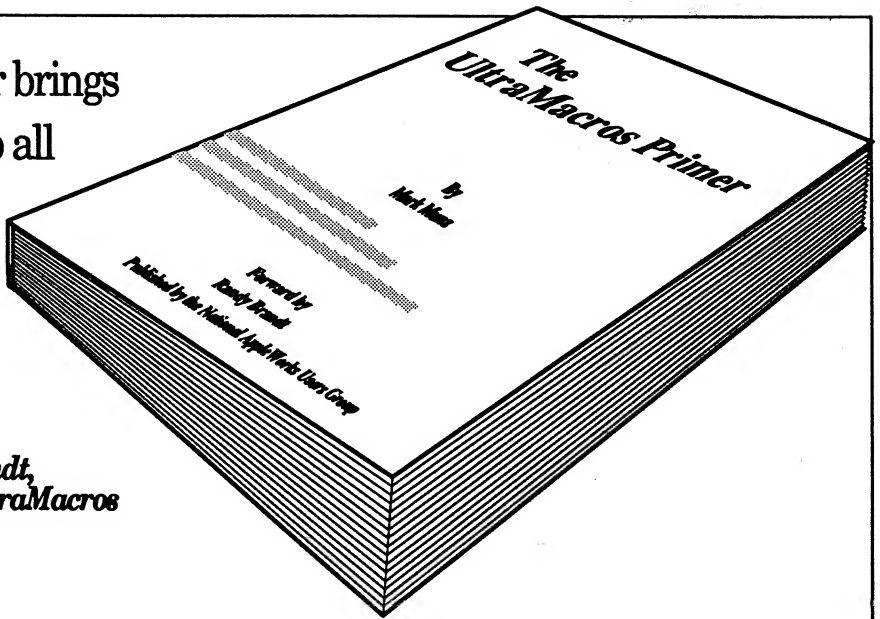


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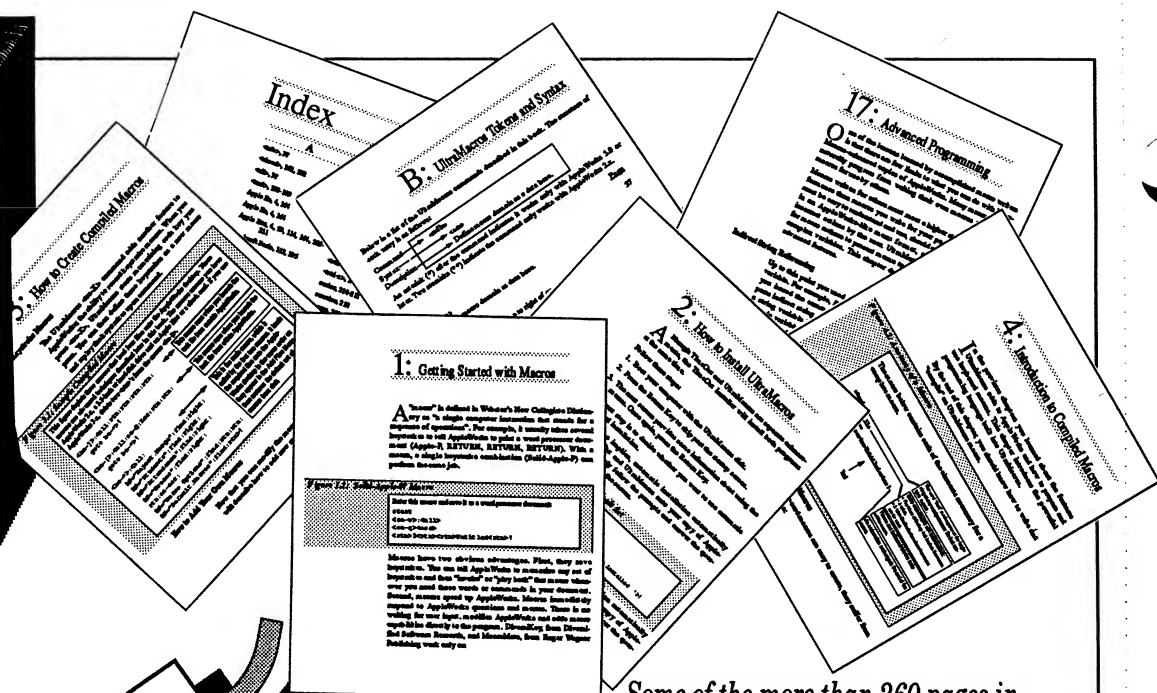
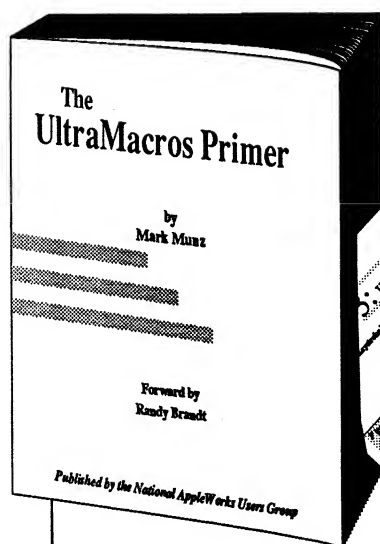
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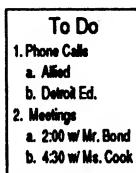
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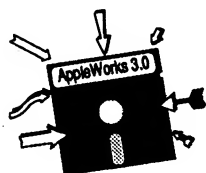
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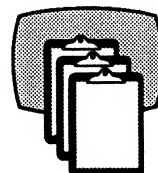
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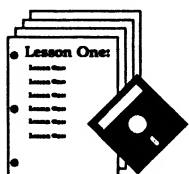
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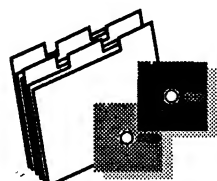
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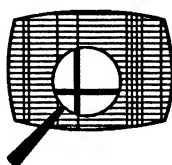
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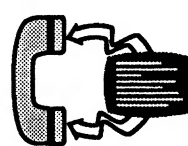
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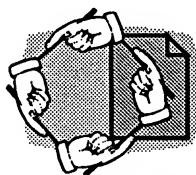
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InWords: Teaches AppleWorks How to Read

by Bruce Shanker and Gary Hayman

Optical Character Recognition (OCR) is a technology that gives computers the ability to read books, legal documents, teachers manuals, collections of test items, typed papers, and any other printed or typed document you want to store on a disk or manipulate with a word processor.

OCR applications require three components: A scanner that can digitize the printed material; software that converts the digitized shapes into letters and numbers; and a computer that processes all this information. This technology has long been available for Macintosh and IBM computers; now WestCode Software's InWords and Vitesse's Quickie scanner bring OCR technology to the Apple II.

Hardware Requirements

InWords is a ProDOS 8 application that converts printed text into AppleWorks, and into a standard format you can import into other popular Apple II word processing programs. The program requires a Vitesse Quickie scanner and runs on any Apple IIGs or enhanced Apple IIe equipped with at least 512K of RAM. InWords should also run on any Apple II-compatible computer with a 65C02 chip, Mousetext ROMs, at least 512K of memory, and an available expansion slot to accommodate the Quickie scanner interface card. However we did not test InWords with these compatibles. Owners of compatible computers should contact WestCode to determine if the program will run on their systems.

InWords will not run on Apple IIc's, Macintosh LC's equipped with an Apple IIe emulator card, or any other Apple II-compatible computer that does not offer an expansion slot for the scanner.

Ease of Use

Converting a printed document into a word processor file is a four part process. First, you use the scanner to capture the document as a graphic image. Second, you convert the graphic image into a string of ASCII characters. That often involves "training" the software to recognize the fonts used in the document. Third, you convert the text into a format recognized by a word processing program. Finally, you use the word processor to edit and print the document.

Most of the scanning process is mechanical and easy to learn. The more difficult tasks include:

1. Learning the correct accuracy and density settings for the scanner.
2. Using smooth, even movements of the scanner, and keeping the scanner relatively perpendicular to the lines of text.
3. Learning how to train InWords for fonts it does not recognize. The mechanical aspects of the training process are easy to master, but the process requires you to decide whether or not to train the software for any individual character. This process is not intellectually or mechanically difficult, but can be time consuming. For example, it took us 30 minutes to train InWords to read the characters in the Philadelphia Inquirer with 95% accuracy.

The manual uses well-defined, carefully printed text, that makes it easy to get a good scan on your first try. However, you will have to be patient as you start to use InWords with less-than-perfect documents. Over time you will learn techniques that produce more reliable scans.

Figure 1: Accuracy of InWords Scans

| Item Scanned | # of Characters | | Percent Correct | Font Table |
|--------------------------------------|-----------------|-------|-----------------|---------------|
| | Correct | Total | | |
| A2-Central masthead | 101 | 110 | 92% | A2.Central |
| AppleWorks Forum | 520 | 540 | 96% | NAUG.AW.Forum |
| Applied Engineering Manual | 151 | 163 | 93% | Standard |
| ImageWriter II letter (best quality) | 580 | 600 | 96% | Custom Table |
| New York Times | 347 | 360 | 95% | Custom Table |
| Newsweek (photocopy) | 760 | 800 | 95% | Newsweek |
| Time Magazine | 568 | 570 | 99%+ | Time |
| Time Magazine (photocopy) | 573 | 600 | 96% | Time |
| US News and World Report (photocopy) | 465 | 540 | 86% | US News |
| US News and World Report (photocopy) | 1394 | 1500 | 93% | Standard |

Fonts and Font Files

A font is a set of similarly sized characters that share a common design. For example, the characters in this sentence are all written in the same font; 11-point Times. Each different size of Times, as well as boldface Times, italicized Times, and other variants of Times each represent a different font.

A "font family" consists of all the different size and variations in a font. For example, italicized Times, boldface Times, and 10-point and 12-point Times are all variants of the same font family.

InWords stores the description of the fonts it scans in different "font files" and uses the data in these files to translate the graphic images captured by the scanner into ASCII characters. For example, the program stores the information about the fonts used in the *AppleWorks Forum* in a file called "NAUG.AW.Forum".

Like most publications, each issue of the *AppleWorks Forum* includes numerous fonts. NAUG prints most body copy in 12-point Times. Sidebars are usually in 11-point Times. Headlines are in Helvetica. In addition, the acronym NAUG is usually in boldface Times, and "AppleWorks Forum" is in Times that is both boldface and italicized. Thus, each InWords fonts file must actually include the data for many fonts; the size and complexity of the table depends on the number of fonts used in the publication.

Overall, we consider InWords relatively easy to learn and use. However, the learning process does not always progress smoothly. The manual makes it so easy to get your first successful scans that we were psychologically unprepared for the problems

we encountered working with difficult-to-scan documents such as newspapers and the Congressional Record. Once we understood the complexity of the task we were asking InWords to accomplish, we became patient with ourselves and with the program, as we developed the skills necessary to scan these documents.

Accuracy of Scans

The primary criterion of the effectiveness of an OCR system is its ability to accurately scan printed documents. After gaining adequate experience, the first author conducted a number of tests to determine the accuracy of the scanning process. Those results appear in *Figure 1*.

Since there are 60 characters on a standard AppleWorks line, a scan with 95% accuracy generates an average of three missing or incorrect characters per line. Most of the errors are either predictable character substitutions (such as "1" instead of "i", and "5" instead of "S") or unrecognized characters (which InWords replaces with a tilde). You can use AppleWorks' editing commands and spelling checker to correct these errors. (See the sidebar entitled "Using AppleWorks with InWords Files" for help with this process.)

The data in *Figure 1* suggests that InWords was more accurate when used with one of the predefined fonts tables than with the standard font table. And, as you would expect, the better the quality of the original, the more accurate the scan. (Scans of photocopies of magazines produced sig-

Software Review...

nificantly more errors than scans of the original material.)

It made no difference whether we asked InWords to scan a single column of text or a full-page document with two passes of the scanner. The program was effective when it scanned both documents.

If you leave the scanner set at 400 dots per inch, InWords is surprisingly effective at reading small print. For example, InWords scanned the 9-point Applied Engineering manual with 93% accuracy and the 6-point font used in the A2-Central masthead with 92% accuracy.

InWords also proved effective at scanning near letter quality output from an ImageWriter II when we used an ImageWriter fonts table available for download from America Online. However, as you would expect, we were unable to scan standard quality ImageWriter output. (The InWords manual explains that the program cannot recognize the pattern of discrete dots produced by standard quality output from a dot matrix printer.)

Finally, while the quality of the paper had a significant impact on the accuracy of the scan (newsprint was a particular problem), the color of the paper did not affect the accuracy of the scan.

Speed

InWords is surprisingly fast. Working on an unaccelerated Apple IIGS, it takes about one minute to scan and translate a full column of text from the *AppleWorks Forum*. The scanning and processing times are tied to the speed of the computer; it takes a TransWarp GS-equipped IIGS 30 seconds to scan and translate the same column of text.

WestCode does not recommend using InWords with an unaccelerated Apple IIe or compatible; the 1.04-megahertz processor is too slow to reliably capture the scanned image.

Documentation

The InWords package includes both 3.5-inch and 5.25-inch disks, a spiral-bound manual, and a card that summarizes InWords' keyboard commands. The program is not copy-protected.

The 101-page manual is one of the best we've

Some Uses for InWords

Gary Hayman uses InWords to create an electronic version of the Congressional Record for inclusion in newsletters and correspondence to interested parties.

Candy Faire uses InWords to prepare large print materials for her sight-impaired students. She has sighted students scan the text into AppleWorks and then prints the material in a large font with SuperFonts.

Please tell us about your unusual uses for this flexible program; we'll share your ideas with your colleagues. Write to: InWords, NAUG, Box 87453, Canton, Michigan 48187.

Using AppleWorks with InWords Files

If you've used InWords, you know that the program is good, but far from perfect. The AppleWorks files generated by InWords frequently include many tildes (~'s) and mis-identified characters. (InWords substitutes a tilde for any character it doesn't recognize.)

You will be tempted to start by using AppleWorks' spell checker to clean up the file. However, AppleWorks does not recognize the tilde as a character within a word and treats all words containing tilde's as two or more separate words. If you check the spelling now, AppleWorks will generate a long list of short words, and correcting those words will be a time consuming process.

I suggest that you start by scanning the document for patterns of misspellings and use the Apple-R command to correct those errors. For example, you might find that InWords always translated "f's" as the number "8" and "l's" as the number "1". Use the Apple-R command to replace these errors.

Then it is time to use AppleWorks' spell checker to complete the work. First, use the Apple-R command to substitute an easily identifiable and seldom used character for all the tilde's in the document. I replace the tilde's with the number "4" to prevent AppleWorks from dividing the word and because that character stands out in the spelling list. However, you can use any rarely used numeric or alphabetic character (such as "X" or "Z") for this substitution. Then issue an Apple-V and let AppleWorks clean up your file.

— Gary Hayman

seen. It is well organized, well written, easy to understand, and includes an excellent tutorial which takes you step-by-step through different types of scans. The documentation does an excel-

lent job of describing how to use the features of the program and includes valuable hints to help you use the program. The manual includes a well written reference section that details the operation of each feature of the program.

However, in actual use, things don't go as smoothly as described in the manual and, over time, you will discover techniques that will improve your success with the program. We believe that WestCode should consider producing an InWords training video that would show an expert using the program, particularly with the scanning and font training process.

Bugs and Problems

Most of InWords' problems manifest themselves by occasional lockups that occur when you scan horizontal lines, graphs, or pictures. Fortunately, the developers let you unlock the program by entering a Control-Reset. You can then examine the scanned image to determine the cause of the problem and use blank Post-It notes or paper to cover the drawings or lines.

Another bug occasionally causes InWords to crash into the monitor when you launch the program. This problem is related to the size of the font file you used the last time you scanned a document. That is, when you launch InWords, the program automatically loads the font file it used the last time you ran the program. If that file is 7K or larger, InWords crashes. However, there is a work-around: Do *not* quit InWords immediately after using the Standard font file or any font file larger than 7K. Instead, load in a smaller font file (such as the A2-Central fonts) before you quit the program. If you forget, and if InWords crashes, enter a Control-Reset and change the font file. Then, to be certain the program launches and operates properly, quit InWords and re-launch the program.

[Ed: As this issue went to press, WestCode announced it would release version 1.1 of InWords. According to WestCode, version 1.1 fixes these bugs and supports the LightningScan GS. The company will send registered InWords owners a free update to version 1.1; make certain that you send WestCode the product registration card that comes with InWords.]

Support

Both authors called WestCode for support without revealing that they were reviewing the product for NAUG. Rob Renstrom, one of the developers of AppleWorks 3.0, and a principal in WestCode, answered the phone on both occasions. His attitude was professional and helpful as he took the time to discuss the problems and offered suggestions which we implemented while he waited on the phone. He listened intently to our experiences and was interested in our comments.

WestCode will soon offer technical support through America Online, CompuServe, and GENie.

Based on these calls and the favorable reports we've heard from other users, we rate WestCode's service as "excellent".

Conclusions

InWords is an exceptional program that lets AppleWorks users import text from printed documents. We recommend the program to anyone who finds themselves needing to enter these documents into their computer. NAUG members can buy the Quickie scanner and InWords for less than \$270; we consider it an excellent value.

[Vitesse's Ambassador program offers NAUG members a Quickie scanner for \$179.40 plus \$5 s/h (list price: \$299). Send your check (payable to Vitesse) or your credit card number, expiration date, and address to Bruce Shanker, 1279 Boyd Road, Warminster, PA. Members can get InWords for \$79.95 plus \$3.50 s/h directly from NAUG. InWords has a suggested list price of \$129.]

[Bruce Shanker is a mathematics teacher at Kensington High School in Philadelphia, Pennsylvania. He is one of NAUG's Beagle Buddies and is licensed by JEM Software to update NAUG members' JEM disks.]

Gary Hayman, a Certified Hypnotherapist in private practice in McLean, Virginia, is Chairman of the AppleWorks and Apple IIGs Special Interest Groups for the Washington Apple Pi users group.]

InWords: Tips, Hints, and Suggestions

by Gary Hayman and Bruce Shanker

Here are some hints and ideas to help you use InWords:

1. Be selective about the material you choose to scan. InWords does an excellent job scanning well-formed type printed on high quality paper. You should expect less than perfect results when you scan photocopies, documents printed on newsprint, or dot matrix output.
2. Prepare the document for scanning. Cover any graphics with Post-It Notes or pieces of paper. Cover all horizontal lines with Post-It Correction and Cover-up Tape available from large office supply dealers.
3. Put flimsy or folded items inside a clear plastic paper protector. That will keep the item flat and not let it move as you complete the scan.
4. The steadier and smoother the scan, the better the results. Try to maintain horizontal parallelism between the Quickie's LED light bar and the line of text.
5. Place the scanner so the text starts near the left edge of the scanned area. Don't center the scanner over a narrow column of text; the recognition process proceeds more smoothly if you keep the text near the left edge of the scanner.
6. Adjust the light/dark thumbwheel on the scanner carefully; even the slightest movement can affect your results. If you cannot move the wheel by small increments with your thumb, use the point of a letter opener or other instrument for better control. Start by setting the adjustment so it is too light (slightly left of the center position). Test your setting by scanning a few lines and looking at the results on the screen. If the display is not satisfactory, move the thumbwheel slightly toward the darker position, issue an Apple-R command and re-scan.
7. Newspapers generally require a slightly lighter thumbwheel setting than other media.

8. Set the scanner to 400 dots per inch (position #4 on the slide switch) for clearer definition when you scan all except the largest fonts.

Moving the Scanner

9. Most Quickie users pull the scanner toward them as they work. However, you can get more precise control if you stand up and push the scanner away from you. Lock your hand, wrist, elbow, arm and shoulder and slowly lean forward. That lets you control of the speed of scan and will keep the scanner head parallel to the lines of text on the page.

If you are using the Quickie software to scan a graphic image, your graphic will appear upside down on the screen. You can then enter an Apple-A (to "Select All") and an Apple-Y (to flip the image vertically).

InWords does not offer an equivalent to the Quickie's Apple-Y command, so you will have to turn both the document and the Quickie around. That will put the top line of the paper closest to you and point the wire that emerges from the Quickie away from you.

This technique will seem uncomfortable at first, and you will have to experiment to determine the best way to keep one of your fingers comfortably on the Start button during the scan. However, this approach will help you maintain more control of your movements as you scan.

InWords Settings

10. Although the manual suggests that you set the Recognition Precision to "7" when you do font training, we get better results with a setting of "10". (The Recognition Precision setting tells InWords how confident it must be before it recognizes a character. The higher the Recognition Precision setting, the fewer the characters that InWords will recognize. The lower the setting,

the greater the number of incorrect characters that InWords will put in your document.)

11. Only train the program to recognize fully formed, well defined characters. Look carefully at each unrecognized character on the screen. Is it well formed? Does the box on the screen include the complete character (including the descender or ascender)? Are small parts of adjacent characters in the box on the screen? Is the box free of smudges or black marks?

Press the Space Bar to skip the characters that you don't want to train. Enter an Apple-Return to skip an entire line during the training process.

12. If you make a mistake when training InWords, immediately issue an Apple-F to go to the font table. Highlight the error in the font table and issue an Apple-D to delete that entry. Even though there may be several listings for the trained letter or combination, the Apple-D command deletes the last entry first; that is why you must act promptly.
13. If InWords constantly misidentifies some characters (e.g., if it represents all f's as 8's), go into the fonts table and delete all the 8's and f's. Then re-scan the parts of the document that contain these characters and retrain the program.
14. You can enhance the existing fonts tables by training them to recognize additional characters. However, make certain that you preserve the original table by changing the name of the file before saving your work.
15. Examine the size of your customized fonts tables. There is no ideal size for a table; the size should be determined primarily by the number of fonts used in the publication. However, review your training practices if your tables are consistently larger or smaller than the original tables on the InWords disk.
16. Issue a Control-Reset whenever InWords locks up. Later versions of the program should be more reliable, but the Control-Reset keystrokes can save you a lot of time when working with InWords 1.0.

17. InWords retains the graphic image in memory until you touch the "Start" button on the scanner. This lets you change the font table and recognition precision settings *after* you scan an image. Then you can re-analyze the document and judge the impact of these settings without rescanning the document.

Follow these steps to change the font table or recognition precision without rescanning:

- A. With the Edit or Recognition page on the display, press the Escape Key to return to the Main Menu.
- B. Press the Return Key to go to the Scan Menu.
- C. Select a font table. Choose the current font table setting if you just want to change the recognition precision.
- D. Change the recognition precision up or down one setting. I suggest that you start with a setting of "10" and then lower the setting one position at a time to see if that improves or degrades the quality of the translation.
- E. Re-enter the appropriate Standard, Merge, or Column choice and press the Return Key *twice*. That will return you to the Image Screen.
- F. Press the Return Key again to start the page analysis. If too many tildes or misspellings appear on the screen, press the Escape Key to interrupt the process and return to the Main Menu. Then follow the steps beginning at "B" above to adjust the settings.

Although these steps appear complex, the procedure only takes 5-10 seconds and lets you change the InWords settings without rescanning the document.

18. Some users prefer to leave Font Training active while they use an existing font table. That lets you fine-tune the font table, but incorrect judgments can have an adverse effect on that table if you save it. When working with a pre-trained font, we suggest that you leave Font Training

AppleWorks Add-Ons...

turned off until you have a lot of experience training InWords for different fonts.

If you leave Font Training active, make certain that you understand the training commands listed on pages 66-67 of the InWords manual. The Option-Character combination lets you enter a character into the editor but not the font table. Use that combination when you know the character but think it is inadequately formed to become a part of the font table. Use the Open-Apple-Space Bar command to skip dirt, specks, and parts of graphics. Use Open-Apple-Return when the rest of the line is garbage or a graphic.

19. Keep a record of your work; the better your records, the easier it will be to determine the appropriate settings and font table for a new scan. Consider keeping a three ring binder with a copy of each scanned document. Write down the scanner and InWords settings you used to produce the best scan.

[The authors thank Lee Raesly for his help with this article.]

NAUG Support for InWords

Share your customized InWords font files with your colleagues. Send your font files to: InWords Fonts Files, NAUG, Box 87453, Canton, Michigan 48187. Include the name of the publication(s) read by each file on the disk. NAUG will distribute your fonts files through the group's Public Domain Library and will upload these files to the Electronic Forum and to the NAUG areas on America Online, CompuServe, and GENie.

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April 1991 Update

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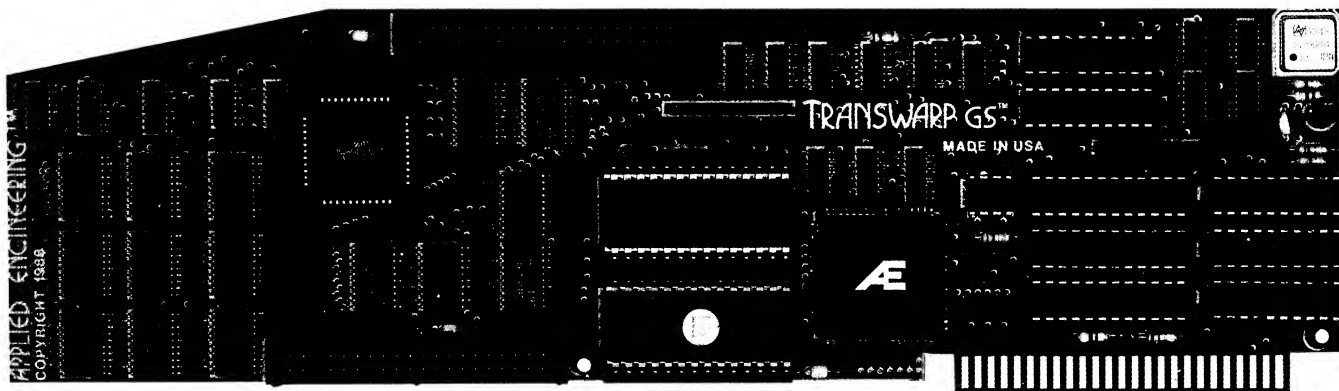
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Bulletin Board Update

NAUG's free multi-line AppleWorks bulletin board, the Electronic Forum, was out of service for a week in early March. We apologize for this inconvenience. At press time, in mid-March, the board was back in service and operating normally.



Fan mail GS

"TransWarp GS has performed flawlessly ... I've become addicted to computing at warp speed ... once you get a taste, you'll wonder how you ever got anything accomplished with your IIGS lumbering along at an unaccelerated pace ... it's an improvement you're going to appreciate every time you place your fingers on the keyboard."

— Owen Linzmayer, Technical Editor, A+

"I'm stunned ... bordering on speechless. I used to dread waiting and waiting to run GS/OS. I don't anymore. TransWarp GS breathes new life into my computer. Thanks AE, you guys are in a class by yourselves."

— Joe Kohn, The Source

"Once I started using the original TransWarp in my old IIe, I found I couldn't do without it, TransWarp GS promises to be equally indispensable."

— Lafe Low, Review Editor, Incider

"This is the card you want. Sell whatever secondary peripherals you must in order to get a TransWarp GS plugged in."

— Joe Abernathy, Houston, TX

"Together with my RamKeeper, you have given me a color Mac at one-third the price. Thanks."

— Richard Artz, Ft. Collins, CO

"I have conducted some recent tests which indicate that the 'little' IIGS (with TransWarp GS) outperforms the MacSE. Your engineering department should take a bow."

— George Dombrowski, Jr., Chicago, IL

"TransWarp GS will be the best \$400 you ever spent."

— Dan Muse, Editor in Chief, Incider

"WOW WOW WOW! I am completely blown away with how fast it goes. Unbelievable."

— Dean Esmay, A2-Central

"TransWarp GS is by far the best money I've spent on my GS since purchasing my DataLink. Hats off to everyone at AE for another great product!"

— Greg Dacosta, GENie

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News and Special Offers

America Online

America Online (AOL) features AppleWorks chats every Sunday evening at 9pm EST in the AppleWorks Conference room. The April 7 discussion will focus on "AppleWorks and Apple II's: As good as a Mac?" April 14's discussion will offer tips for using AppleWorks' data base module. Oliver Roosevelt, AOL's AppleWorks leader, invites his fellow NAUG members to join him for these chats.

Applied Engineering

Applied Engineering recently restructured its technical support services to put increased responsibility on the company's dealer network. Applied indicates that buyers should contact their dealer with questions about the operation of Applied products and to arrange for warrantee repairs. Calls to Applied are now handled on a fee-for-service basis on the company's new 900 Technical Support number ((900) 369-AEAE) between 9am and 5pm CST weekdays. Callers pay \$1.50 per minute, which includes all long distance telephone charges. Applied added technicians and telephone lines to eliminate the busy signals and waiting time formerly experienced by callers; all calls are answered by a technician, not a telephone queuing system.

Applied recently upgraded its free technical support bulletin board, which offers a data base of information about Applied Engineering products. The board includes the current version numbers of the company's hardware and software offerings, and has a data base that answers the most frequently asked questions about Applied Engineering products. The board serves as a vehicle for users to share information about the company's products, but is not a way to get direct technical help from Applied. Technical questions should be directed to your dealer or to the company's 900-number.

You can reach Applied's 300/1200/2400 bulletin board at (214) 241-6677. Telecommunications settings are 8-bits, no parity, 1 stop bit, full duplex. [Applied Engineering, Box 5100, Carrollton, Texas 75011; (214) 241-6060.]

Beagle Bros

Beagle Bros recently released updates to TimeOut QuickSpell and Outliner. QuickSpell version 3.01 fixes an obscure bug that occasionally locks up the program. NAUG members can get updates to QuickSpell from any of NAUG's Beagle Buddies.

Outliner 1.2.2 fixes problems that occur if you (a) have a disk printer installed in AppleWorks, or (b) try to print an outline that includes boldface, underline, or any other imbedded command. Outliner updates are available free to NAUG members; send your original Outliner disk and a stamped, self-addressed return mailer to NAUG with your request. We would appreciate, but do not require, a \$1 donation to help reimburse the group for the costs associated with this disk exchange. Our thanks to Beagle Bros for supplying the replacement Outliner disks. [Beagle Bros, 6215 Ferris Square, Suite 100, San Diego, California 92121; (619) 452-5500.]

Computer Literacy Press

Computer Literacy Press (CLP) recently announced the release of Leuhrmann and Peckham's *Hands-On AppleWorks 3*, a major update of the company's popular package for AppleWorks educators. *Hands-On AppleWorks 3* describes how to use AppleWorks 3.0's new features, including the program's spelling checker, tab system, and headers and footers.

CLP offers hard covered and spiral bound versions of *Hands-On AppleWorks 3* and a separate soft cover book that contains only the material on file and word processing commands.

The company continues to produce the original *Hands-On AppleWorks* books and disks for schools that use earlier versions of AppleWorks.

CLP offers a free 30-day examination of teacher sets, which include a student text, copiable data disk, and teacher's guide. Contact the company for details. [Computer Literacy Press, Box 22383, Gilroy, California 95021-2383; (800) 225-5413.]

Cynthia Field

Dr. Cynthia Field recently released EnviroWorks, a data base with useful information about more than 150 companies that sell environmentally responsible consumer products, such as reusable grocery bags, recycled computer paper, and herbal flea collars. Each record includes information about the products offered by the company, and the firm's address and toll-free telephone number.

EnviroWorks includes a bibliography of books and magazines about nature and the environment, and a file containing 101 environmentally responsible ideas you can implement around your home. EnviroWorks also includes a file with information about alternatives to toxic or over-packaged household cleaning and personal care products.

The AppleWorks 3.0 version of EnviroWorks costs \$5.95; the AppleWorks GS version is \$7.95; add \$2 s/h. Dr. Field offers NAUG members an unconditional money-back guarantee if they are not satisfied with the product. [*C.E. Field Enterprises, 60 Border Drive, Wakefield, RI 02879-3802.*]

JEM Software

Until May 31, NAUG members can get a special discount price on JEM's PathFinder and SpellCopy enhancements to AppleWorks.

PathFinder makes it easy to change the current pathname, delete empty subdirectories, and rename, lock, and unlock files from within AppleWorks.

SpellCopy is an AppleWorks 3.0 enhancement that automatically copies any files you specify, including the AppleWorks spelling dictionaries, onto a RAM disk. The program also modifies AppleWorks so it looks on the RAM disk for its dictionaries. This dramatically accelerates the operation of AppleWorks' spelling checker and dictionary-based AppleWorks enhancements such as TimeOut Thesaurus. NAUG recommends SpellCopy to all members who run AppleWorks 3.0 on an Apple IIGs with at least 1 megabyte of memory or on an Apple IIe equipped with a 1-megabyte RamWorks or RamFactor card.

Until May 31, NAUG members who buy PathFinder at its regular price of \$20 (plus \$2 s/h) will get the \$12.50 SpellCopy enhancement free. Identify

yourself as a NAUG member and give your NAUG membership number when you order.

NAUG members who want to use AppleWorks with a RAM disk should also get Steve Ellis' RAM Disk Tutor from NAUG's Public Domain Library. RAM Disk Tutor describes the step-by-step procedures necessary to install and use a RAM Disk with AppleWorks. RAM Disk Tutor costs \$4 (5.25-inch disk) or \$6 (3.5-inch disk) plus \$2 s/h from NAUG. [*JEM Software, 7578 Lamar Court, Arvada, Colorado 80003. Orders only: (303) 422-4856.*]

Robert Merrill

Family Tree is a stand-alone genealogy program that helps you gather and maintain data about your family heritage. The program then generates charts and lists of the descendants or ancestors of any relative you specify. Family Tree can also generate a Family Group page with information about grandparents, parents, siblings, spouse, and children of any individual in your file. Finally, Family Tree can automatically determine the relationship between any two individuals you specify.

Family Tree is unique because of the program's ability to generate each of its reports as a standard AppleWorks word processor file. You can then edit, format, and print the report with AppleWorks. Family Tree can also automatically convert all the data about your relatives directly into an AppleWorks data base file. NAUG members certainly recognize the flexibility and power this adds to the program.

Family Tree normally costs \$39.95. However, until July 1, NAUG members can buy the program directly from the developer for \$29.95 including shipping. California residents must add the appropriate sales tax, and foreign orders cost \$5 additional.

Order Family Tree by mail and include a check or money order and your NAUG membership number to qualify for this special price. Robert Merrill, the developer of Family Tree, cannot accept telephone or credit card orders. Mr. Merrill will refund the payment from any NAUG member who is not satisfied with the program. [*Robert Merrill, 6180 Via Real, #25, Carpinteria, California 93013-2863; (805) 684-3366.*]

Mark Munz

TimeOut developer Mark Munz is coordinating a national effort to bring attention to the flexibility, power, and utility of Apple II computers. This work will include the publication of what Mr. Munz believes will be the computer industry's first user-supported advertisement. For more information, contact Mr. Munz on NAUG's Electronic Forum, America Online ("MMUNZ"), or GENie ("M.MUNZ1"). Alternatively, you can write to Mr. Munz at Beagle Bros.

Sequential Systems

Sequential Systems manufactures the Q-System, a hardware solution that makes it easy for multiple AppleWorks users to share a printer. The standard Q-System connects four Apple IIe or IIGS computers to a parallel or serial printer. The system includes four interface cards that replace the printer card in each computer and all the necessary cables. The Q-System has a 64K buffer that is adequate to capture the output from AppleWorks and other 8-bit programs that use the character sets built into your printer. The parallel printer Q-System retails for \$480, the serial version for \$550. Until July 1, 1991, NAUG members can buy the systems directly from Sequential for \$220 and \$265 respectively.

The Q-System GS is a stand-alone, intelligent printer controller that buffers and queues print jobs from up to seven Apple IIe, IIC, IIC Plus, IIGS, Macintosh, or MS-DOS computers. The Q-System GS, with 256K of RAM (expandable to 4-megabytes) lists for \$750. Until July 1, NAUG members can buy the 256K Q-System GS directly from Sequential for \$375; a 1-megabyte system costs \$450. 256K will be more than adequate for Apple II and MS-DOS computers running programs such as AppleWorks that use the character sets built into the printer. Users of Macintosh computers or Apple II owners who use page layout programs, graphic intensive programs such as SuperFonts, or 16-bit programs such as AppleWorks GS, will want 1-megabyte or more of memory in their Q-System GS. The Q-System GS uses Macintosh-compatible SIMMs, making it easy and inexpensive to expand the memory in the unit. [Sequential Systems, 1200 Diamond Circle, Suite D, Lafayette, Colorado 80026; (800) 999-1717.]

Stone Edge Technologies

DB Master Professional is a powerful relational data base program that accommodates up to 200 fields per record, 250 characters per field, 2,000 bytes per record, and up to ten megabytes of data per file. The program, which can import data from any version of AppleWorks, offers data validation, password security, and other features found in high-powered stand-alone data base programs.

DB Master Professional comes with 800 pages of documentation, including a complete tutorial and a comprehensive reference manual. The program runs on any enhanced Apple IIe with 128K or more of RAM and on any Apple IIC, IIC Plus, IIGS, or Laser 128 computer. A hard disk is recommended.

DB Master Professional has a suggested list price of \$295. However, until July 1, NAUG members can buy the program directly from Stone Edge for \$169 plus \$5 s/h.

Version 9400 of DB Master Professional is current; owners of earlier versions should contact Stone Edge for special upgrade prices. [Stone Edge Technologies, Box 3200, Maple Glen, Pennsylvania; (215) 641-1825.]

WestCode Software

WestCode Software is completing development of version 1.1 of InWords, the company's Apple II-compatible optical character recognition software. Version 1.1 is a maintenance release that fixes the lock-up problems that can occur with version 1.0 of the program. New features in InWords 1.1 include support for the LightningScan GS scanner and a "toggle" that lets you turn off the audio feedback the program generates when you scan text. InWords 1.1 also lets you tell the program to ignore numbers mixed with text in a word. That dramatically decreases the number of substitution errors users experience when they scan.

WestCode will automatically send a free copy of InWords 1.1 to all registered users upon release of the product. You must send WestCode your InWords registration card to receive this free update. [WestCode Software, 11835 Carmel Mountain Road, Suite 1304, San Diego, California 92128; (619) 679-9200.]

Date Functions and Form Letters

— Part 2

by Dan Verkade

This is the tenth in a series of articles that describe how to use TimeOut ReportWriter to enhance the power of AppleWorks. The author assumes that you read the previous articles in this series.

Last month you learned about the syntax of ReportWriter's date and time functions and how to use ReportWriter's @AWP function to include word processor data in a report. This month's article presents a tutorial that demonstrates how to use these functions when preparing a report. By the end of this article, you will know how to (a) generate reports that use date arithmetic and (b) how to use ReportWriter to produce letters that include text from another document.

During this tutorial you will generate overdue letters to customers with an outstanding balance. The wording of the letter will depend on the length of time each account is overdue. The first letter will look like the example in *Figure 1*.

Follow these steps to generate the report:

1. Load the file "Accounts" from the ReportWriter disk onto the desktop. Examine a few records to get comfortable with the categories and data in the file.
2. Load the file "OverDueLetters" from the ReportWriter disk onto the desktop. This file contains four paragraphs with progressively stronger wording for delinquent customers. These are paragraphs one through four in your report.

Figure 1: Sample ReportWriter Letter

| | | |
|--|------------------|--------------------------|
| ABC Company 123 Fourth Street San Diego, CA 92121 | | |
| Mar 3, 1991 | | |
| Joe Espana 987 Curtz Ave Sun City, CA 95432 | | |
| Loan Date: Dec 12 90 | Days Overdue: 75 | Amount Overdue: \$210.00 |
| Dear Mr. Espana: | | |
| Our records indicate your account is 60 days past due. Your terms are net after 30 days. You are in breach of our contract. Please remit the above amount within 5 days. | | |
| Sincerely, | | |
| Alex Brian Caine Accounting Manager | | |

3. Select ReportWriter from the TimeOut Menu, indicate that you want to "Edit a ReportWriter definition" and select option #3, "Make a new file". Name the new definition file "Customer-Letters".
4. Build the layout so it corresponds to the ReportWriter screen in *Figure 2*. The number in parentheses to the right of each field is the order in which you should create these fields. (The numbers are for your guidance; do not type those numbers into ReportWriter.) ReportWriter performs its calculations in numerical sequence, thus it is important to follow this order when you define the categories.

Figure 2: ReportWriter Screen for CustomerLetters

```

File: CustomerLetters          EDITOR          Escape: Main Menu
-----
                        ABC Company
                        123 Fourth Street
                        San Diego, CA 92121

                        ***** (5)

***** (6)
***** (7)
***** ** ***** (8, 9, 10)

Loan Date: ***** (11) Days Overdue: ***** (12) Amount Overdue: ***** (13)

Dear ***** (14)

* (15)

Sincerely,

Alex Brian Caine
Accounting Manager

* * * * (1,2,3,4)

-----
Type entry or use ⌘ commands Row: 1 Col: 1          ⌘-? for Help
    
```

fields in subsequent “calculations” when you print the address and the greeting.

‘Today’ (field #4) establishes the equivalent of today’s date. This report is time-sensitive because you want to calculate the number of days each customer is overdue based on the date of the last payment into the account. Thus, you will obtain different results depending on when you generate the report. Note that the AccountDate category in the Accounts file contains dates in 1989. For this report to work correctly, we need dates that are more current. Therefore, we will “fix” this field to the date of May 15, 1989 so we can generate valid reports.

The formula in field #4 operates in two steps. First, @TXT2DAT(“05/15/89”) converts the fixed date of 05/15/89 into an AppleWorks date format. Then @DAT2JUL converts that date into a Julian date.

‘DateStamp’ (field #5) will print today’s date in the report.

Field numbers 6-10 print the customer’s name and address.

Figure 3: ReportWriter Fields for CustomerLetters

| Fld # | Field Name | Source | Type | Category (if Master File) or Calculation |
|-------|------------|--------|------|--|
| 1 | Title | Master | Text | Title |
| 2 | FirstName | Master | Text | FirstName |
| 3 | LastName | Master | Text | LastName |
| 4 | Today | Calc | Num | @DAT2JUL(@TXT2DAT(“05/15/89”)) |
| 5 | DateStamp | Calc | Text | @DATE(2) |
| 6 | Name | Calc | Text | @CONCAT(FirstName, “”, LastName) |
| 7 | Address | Master | Text | Address |
| 8 | City | Master | Text | City |
| 9 | State | Master | Text | State |
| 10 | Zip | Master | Text | Zip |
| 11 | ChgDate | Master | Date | AccountDate |
| 12 | DaysOver | Calc | Num | Today-@DAT2JUL(ChgDate) (Fixed, 0 dec. places) |
| 13 | Amount | Master | Num | Amount (Dollar format, 2 decimal places) |
| 14 | Greeting | Calc | Text | @CONCAT(Title, “”, LastName, “:”) |
| 15 | Body | Calc | Text | @AWP(“OverDueLetters”, @INT(DaysOver/30)) |

5. Now use the information in *Figure 3* to define all 15 fields. You want to print a letter for each overdue record in the “Accounts” file; thus “Accounts” is the Master File.

Description of the Fields

Field numbers 1, 2, and 3 put the title and name of the customer in the work area. You will use these

‘ChgDate’ (field #11) extracts the account date from the Master File. This is the date a charge was posted to this customer’s account.

‘DaysOver’ (field #12) calculates the number of days the customer is overdue. The formula works by subtracting the Julian date of the charge date from the Julian date of May 15, 1989.

ReportWriter Tutorial...

'Amount' (field #13) is the number of dollars overdue.

'Greeting' (field #14) concatenates the customer's title and last name for the greeting.

'Body' (field #15) prints a paragraph from the file OverDueLetters in this report. The formula `@AMP ("OverDueLetters", @INT (DaysOver/30))` groups the delinquencies into 30-day periods: 30-59 days falls into the 30 days overdue group and gets an integer value of "1"; 60-89 days fall into the 60 days overdue category and gets an integer value of "2", and so forth. The formula uses that number to select one of the paragraphs from OverDueLetters.

Continue the Tutorial

- With the ReportWriter Editor on the screen, issue an Apple-O command to access the Options Menu, select choice #1, Printer Options, and enter the following settings:

| | |
|----------------------------------|------|
| Platen width | 8.0 |
| Right margin | 0.0 |
| Left margin | 1.0 |
| Paper length | 11.0 |
| Top margin | 1.0 |
| Bottom margin | 1.0 |
| Other: New page for each record? | Yes |
- Press the Escape Key until you return to the ReportWriter Editor screen.
- Enter an Apple-G to generate the report. Check each letter to make certain that the customer received a warning based on the number of days the account is delinquent.

Conclusion

This month you learned how to use ReportWriter's date functions and its ability to do date arithmetic and to incorporate text from word processor documents into a report. These functions have many business and educational applications that let you go beyond the capabilities usually associated with AppleWorks.

[Dan Verkade is the author of TimeOut ReportWriter, DoubleData, SuperForms, and other popular AppleWorks enhancements.]

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Beagle Buddies Directory

This month's *AppleWorks Forum* lists all 297 Beagle Buddies registered with Beagle Bros. These Buddies update TimeOut disks for their local users group and answer questions about the different Time-Out products. The Buddies on this list are also a valuable source of information for NAUG members who want to learn about Apple II users groups in their area. Many of the Beagle Buddies are NAUG members, and most are willing to help their NAUG colleagues. However, they are unpaid volunteers; please do not expect them to return long distance calls or answer their phones at unreasonable hours. Our thanks to Lee Dronick of Beagle Bros for supplying this list; please notify Mr. Dronick of all errors or omissions.

* = Official NAUG Beagle Buddy.

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Corrections

TimeOut SuperForms 1.01 is the current version of that product. Please correct the version number on page 33 of the February issue of the **AppleWorks Forum**.

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